Program 2 : WAP to create a class Student with members USN, name, an array credits and an array marks. Include methods to accept and display details and a method to calculate SGPA of a Student.

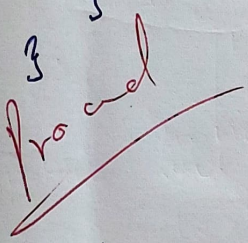
$$SGPA = \frac{\text{Total GP}}{\text{Total credits}}$$

```
import java.util.*;
class Student {
    String name, usn;
    int credit[], marks[];
    public Student (int credit[], int marks[], String name,
                    String usn)
    {
        this.usn = usn;
        this.name = name;
```

```
        this.credit = credit;
        this.marks = marks;
    }

    public void display (double res)
    {
        System.out.println("\n Name : " + name);
        System.out.println("\n USN : " + usn);
        System.out.println("\n Credits Marks : "); ("\n Marks & marks:");
        for(int i=0 ; i< marks.length; i++)
        {
            System.out.println("\n" + credit[i]);
            System.out.println("\n Sub " + (i+1) + "\t Marks = " + marks[i]
                               + "\t Credits = " + credit[i]);
        } System.out.println("\n\n SGPA = " + res);
    }

    public double sgpa()
    {
        double tc = 0 ; //total credits
        double tgp = 0 ; //total grade points

        for(int i=0; i< credit.length ; i++)
        {
            tc += credit[i];
            tgp += calgp(marks[i]) * credit[i];
        }
        return (tgp/tc);
    }

    public double calgp (int m)
    {
        if(m>=90)
```

```
    {
      return 10.0;
    }
  else if (m>=80)
    {
      return 9.0;
    }
  else if (m>=70)
    {
      return 8.0;
    }
  else if (m>=60)
    {
      return 7.0;
    }
  else if (m>=50)
    {
      return 6.0;
    }
  else
    {
      return 0.0;
    }
}

public static void main(String args[]) {
  Student ob = new Student();
  Scanner read = new Scanner (System.in);
  usn = read
  System.out.println("\n Enter name : ");
  name = read.nextLine();
  System.out.println("\n Enter usn : ");
  usn = read.next();
  System.out.println("\n Enter no. of subjects : ");
  int n = read.nextInt();
  System.out.println("
```

```
credit = new int[n];
marks = new int[n];
System.out.println("\n Enter marks and credits \n:");
for(int i=0; i<n; i++)
{
    System.out.println("\nMarks : ");
    credit[i] = read.nextInt();
    System.out.println("\n Credit : ");
    marks[i] = read.nextInt();
}
Student ob = new Student(credit, marks, name, usn);
double sres = ob.sgpa();
ob.display(sres);
}
}
```



Output :

```
Enter name : ABC
Enter USN : 001
Enter marks & credits :
Marks : 90
Credit : 4
Marks : 86
Credit : 3
Marks : 95
Credit : 4
Marks : 89
Credit : 1
Marks : 98
Credit : 1
```

```
Name : ABC
USN : 001
Ex
```

Algorithm :-

Step 1 : Start

Step 2 : input usn, name, ~~credits, marks~~, n

Step 3 : for i=0 to n-1 , do
read credits[i], marks[i]
endoffor

Step 4 : for j=0 to n-1 ; do
tc = tc+ credits[i];
tgp= tgp+(callfunction calgp(marks[j]) * credit[j]);
endoffor

Step 5 : res = tc / tgp

Step 6 : output usn, name

Step 7 : for k=0 to n-1, do
output credits[k], marks[k]
endoffor

Step 8 : output res

Step 9 : stop

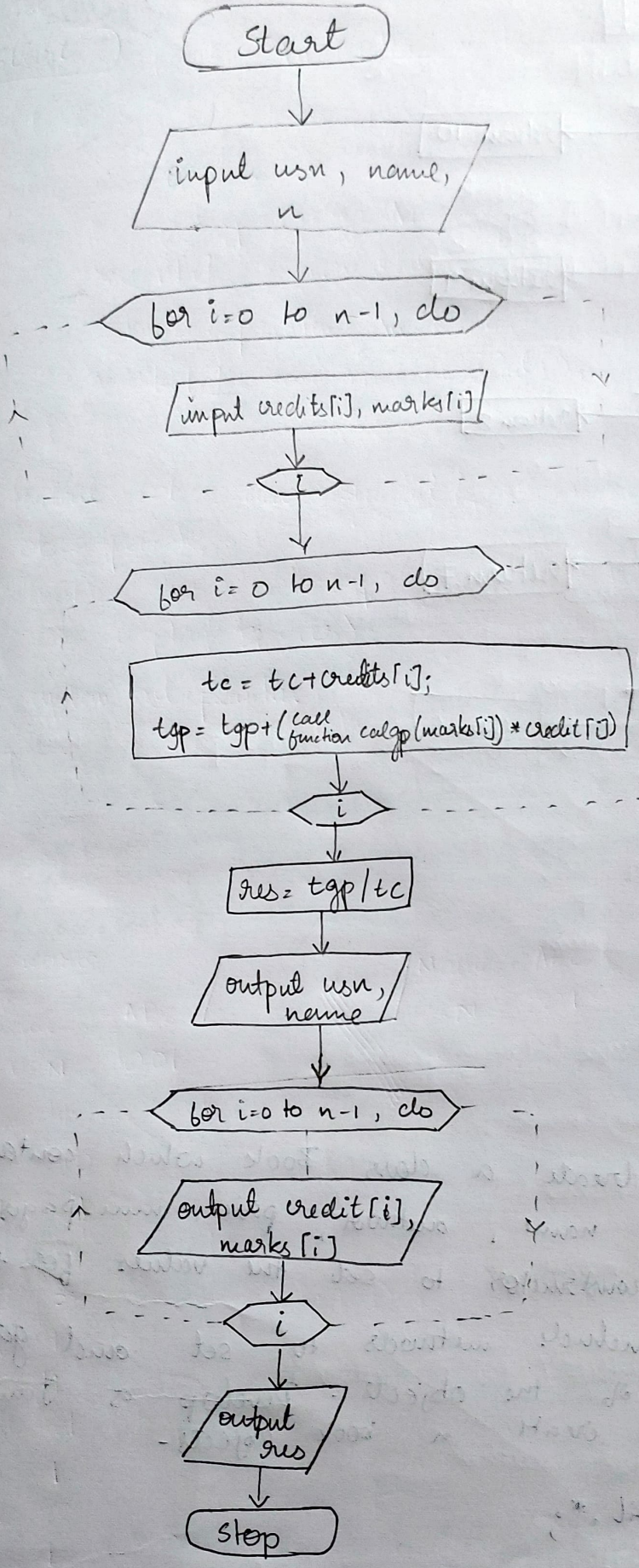
calgp function:

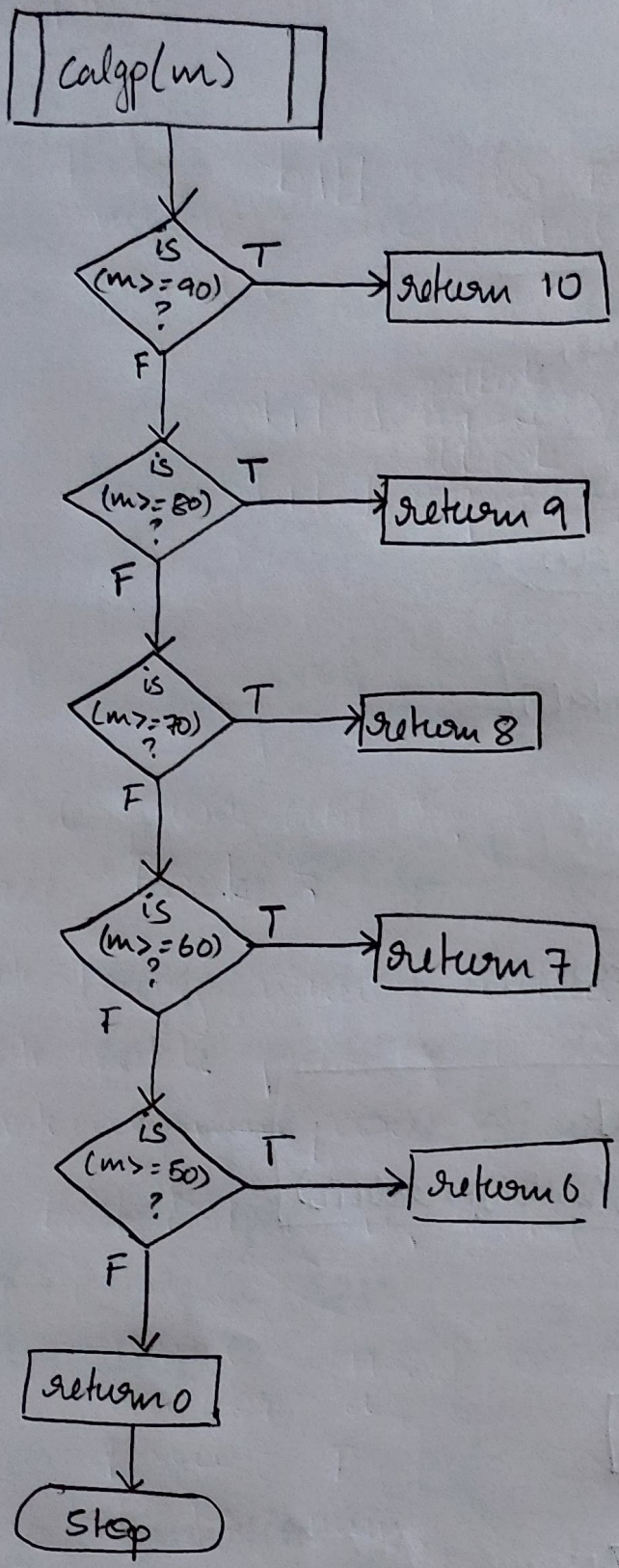
Step 1 : start

Step 2 : if marks >=90
return 10
else if marks >=80
return 9
else if marks >=70
return 8
else if marks >=60
return 7
else if marks >=50
return 6
else
return 0
endofif

Step 3 : stop

Flowchart :


Start
input usn, name, n
for i=0 to n-1, do
input credits[i], marks[i]
i
for i=0 to n-1, do
tc = tc+credits[i];
tgp = tgp+(call function calgp(marks[i]) * credit[i])
i
res = tgp/tc
output usn, name
for i=0 to n-1, do
output credit[i], marks[i]
i
output res
stop


calgp(m)
is (m>=90) ?
T
return 10
F
is (m>=80) ?
T
return 9
F
is (m>=70) ?
T
return 8
F
is (m>=60) ?
T
return 7
F
is (m>=50) ?
T
return 6
F
return 0
Stop

```
C:\Users\BMSCE\Desktop\014>javac Student.java

C:\Users\BMSCE\Desktop\014>java Student

Enter name: ABC

Enter USN: 123

Enter no. of subjects: 5
Enter marks and credits:
Enter marks for subject 1: 90
Enter credits for subject 1: 4
Enter marks for subject 2: 86
Enter credits for subject 2: 3
Enter marks for subject 3: 95
Enter credits for subject 3: 4
Enter marks for subject 4: 89
Enter credits for subject 4: 1
Enter marks for subject 5: 98
Enter credits for subject 5: 1
Name : ABC
USN : 123
Subject 1 :      Marks= 90      Credits= 4
Subject 2 :      Marks= 86      Credits= 3
Subject 3 :      Marks= 95      Credits= 4
Subject 4 :      Marks= 89      Credits= 1
Subject 5 :      Marks= 98      Credits= 1

SGPA : 9.692307692307692
Name: Aditi C
USN: 1BM22CS014
```